COST MODEL ASSUMPTIONS

- Systems are assumed to operate for 1 year, 16 hours/day, 365 days/year.
- The SVE stream is 3,000 cfm.
- System lifetime is 5 years for destruction technologies:

  - Catalytic Thermal Oxidation
  - Flameless Thermal Oxidation
  - Thermal Oxidation
  - UV Oxidation
  - Alkali Bed Reactor
  - Plasma Destruction.

- System lifetime is 10 years for removal technologies (Vapor Phase Adsorption):

  - Fluidized bed adsorber

- Capital cost includes delivery to site.
- Amortized cost is equivalent to an annual loan payment for a loan equal to the capital cost of the system installation over the lifetime of the equipment:

  - Loan amount is equal to capital cost
  - Interest rate is 8%
  - Five payments for destruction technologies
  - Ten payments for removal technologies.

- Labor rates are those of OHM - $50/hr for engineers, $37/hr for technicians.
- Mobilization (mob) cost is calculated as 300 technician hours at $37/hr and 40 engineer hours at $50/hr.
- Demobilization (demob) cost is calculated as 150 technician hours at $37/hr and 20 engineer hours at $50/hr. Total mob/demob cost is $19,650.
- Utility rates are those of PWC San Diego:

  - Electricity $100/megawatt-hour
  - Natural gas $7.15/1,000,000 BTU
  - Water $4.00/1,000 gal
  - Sewer $4.90/1,000 gal.

- DRE is 99% for destruction technologies.
- DRE is 98% for removal technologies.
- The SVE stream is 60% CVOC and 40% VOC.
- The apparent molecular weight of the contaminants in the SVE stream is assumed to be 100.

- The molecular weight of air is 29.
- The molecular weight of water is 18.
- The time history of the concentration of the SVE stream approximates variation in concentration recorded at Site 9, NAS North Island, over a one-year period. These concentrations and duration during which the concentration persisted are listed as follows:

  - Constant at 2,500 ppm for 75 days
  - Linear decline from 2,500 ppm to 200 ppm over a 50-day interval
  - Time weighted average is 1,350 ppm
  - Constant at 200 ppm for 240 days.